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ABSTRACT

After nearly a decade of empirical studies on the effectiveness of various types of psychotherapy, Beck's cognitive/behavioral therapy apparently remains the most effective psychotherapy for depression. However, because of the complexity and the mixture of cognitive and behavioral modification in Beck's therapy it is impossible to test Beck's theory of depression in clinical outcome studies. Two experiments were conducted to evaluate the effectiveness of the cognitive components of Beck's cognitive/behavioral therapy and theory. In Experiment 1, self-referred depressed students were randomly assigned to four groups: Group 1, Beck's Reconstruction of Negative Thoughts; Group 2, Velten's Elation Mood Induction; Group 3, Recording Positive Events, Feelings, and Thoughts; and Group 4, Waiting for Treatment Control. Groups 1 and 3 represent the two cognitive modification components of Beck's therapy. Group 2 used the simplest mood and cognitive modification technique in the literature. Analyses of pre- and post-treatment measures showed that Groups 2 and 3 were more effectively alleviated of symptoms of the depressive syndrome than Group 1, which used Beck's Major Cognitive Modification technique. This supports the view that encouraging depressed persons to focus on positive phenomena is more effective than encouraging them to focus on negative phenomena on a short-term basis. Experiment 2 replicated the positive long-term effects of Velten's statements and demonstrated some of the cognitive processes involved. In general, both experiments confirmed Beck's theory that cognitions influence mood and other symptoms of clinical depression. (JAC)

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# A COMPARISON OF THREE COGNITIVE TREATMENTS IN ALLEVIATING DEPRESSION

(PRESENTATION AT WESTERN PSYCHOLOGICAL ASSOCIATION 62ND ANNUAL MEETING, APRIL 10, 1982)

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## Author Notes

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ABSTRACT

Two experiments evaluated the effectiveness of the cognitive components of Beck's cognitive/behavioral therapy and theory. In Experiment 1, self-referred depressed students were randomly assigned to four groups: Group 1, Beck's Reconstruction of Negative Thoughts; Group 2, Velten's Elation Mood Induction, Group 3, Recording Positive Events, Feelings, and Thoughts; and Group 4, Waiting for Treatment Control.

Groups 1 and 3 represent the two cognitive modification components of Beck's therapy. Group 2 used the simplest mood and cognitive modification technique in the literature. It was hypothesized that treatment groups would show significantly more adaptive scores on eight measurements of depression and associated variables than the control group and this was generally confirmed for Treatment Groups 2 and 3, but was not generally confirmed for Group 1, which used Beck's major cognitive modification technique. Experiment 2 replicated the positive long-term effects of Velten's statements and demonstrated some of the cognitive processes involved. These results are discussed in relation to cognitive theories of depression and the issue

of whether cognitive therapy for depresson should focus on positive cognitions, negative cognitions, or both.

## A Comparison of Three Cognitive Treatments in Alleviating Depression

Beck's cognitive/behavioral therapy for depression has been shown to be significantly more effective than a standard dosage of imipramine in alleviating depression in unipolar depressed outpatients (Rush, Beck, Kovacs & Hollon, 1977). This study was replicated in Britain with depressives in general practice and with depressed hospital outpatients: Beck's cognitive/behavioral therapy was significantly more effective than anti-depressant drugs of the psychiatrists' choice at a recognized therapeutic dosage (Blackburn, Bishop, Whalley & Christie, 1981). The latter study is particularly important because the authors note that while the psychiatrists' bias may have been toward Beck's therapy in the Rush et al. 1977 study, the attending psychiatrists' bias in the Blackburn et al. 1981 study was probably toward the drug treatment. Furthermore, the fact that psychiatrists could choose the drug and match it to the patients, whereas all of the drug subjects in the Rush et al. trial took a

standard dosage of imipramine, indicates that the experimental bias was in the drug treatment direction in the Blackburn et al. study.

After nearly a decade of empirical studies on the effectiveness of various types of psychotherapy for depression, Beck's cognitive/behavioral therapy apparently remains the most efficacious psychotherapy for unipolar depressive syndrome (Beck, Rush Shaw, & Emery, 1979; Hersen & Bellack, 1982; Weissman, 1979). The National Institute of Mental Health (NIMH) is currently replicating the Rush et al. study in several centers in the U.S. with the addition of drug treatments and of another therapy group for comparison (Kolata, 1981).

Because of the complexity and the mixture of cognitive modification and behavioral modification in Beck's therapy, it is impossible to test Beck's cognitive theory of depression in clinical outcome studies. For instance, in Beck's cognitive/behavioral therapy, a patient may be given a homework assignment to call three old friends and invite each to lunch. This is a behavioral assignment which increases the social contacts in which the person engages. However, the purpose of the assignment is likely to be a cognitive one of reality-testing the patient's hypothetical pessimis-

tic idea that all former friends dislike her and will reject her. This type of mixture of behavioral and cognitive modification means that the experimenter cannot know whether the increase in activity and social contacts or the cognitive change was the critical factor in the alleviation of depression.

Taylor and Marshall (1977) attempted to sort out the effects of behavioral modification from the effects of cognitive modification by comparing a cognitive modification group, a behavioral modification group, a cognitive/behavioral modification group and a waiting-control group. They found that all experimental groups improved more than the control group and that the cognitive modification and behavioral modification groups had approximately equal results, while the cognitive/behavioral group improved significantly more than the other two experimental groups. Taylor and Marshall's cognitive modification group was based on Beck (1967) and other cognitive theorists. It included several cognitive modification techniques such as identifying pessimistic cognitions and developing alternatives that are adaptive, similar to the major portion of Beck's cognitive/behavioral therapy and to Group 1 in Experiment 1 of the experiments reported here. The

Taylor and Marshall cognitive modification subjects also read positive self-referent statements similar to Group 2 of Experiment 1 reported here. In similar studies, Shaw (1979), Zeis, Lewinsohn & Munoz, (1979), and Wilson, Goldin and Charbonneau-Powis (1983) found that Beck's cognitive treatment without the behavioral aspects was effective in alleviating depression.

The main purpose of Experiment 1 was to isolate and evaluate the separate cognitive parts of Beck's cognitive/behavioral therapy, something that was not done in the above studies. The second purpose was to evaluate the effectiveness of Velten's elation statements as a therapy technique for mildly depressed clients. Concerning the second purpose, Velten (1968) suggested that some form of his positive statements might be helpful to depressed patients, and Isen, Shalker, Clark and Karp (1978) suggested that Beck's therapy should include positive cueing, of which Velten's Elation Mood Induction is one form. The third purpose was to evaluate Beck's cognitive theory of depression which postulates that a negative interpretation of the self and of life events is a precursor and a defining property of depression; and that a change to a more rational and adaptive interpretation would alleviate

depression (Beck, 1967; Beck, et al., 1979; Kovacs & Beck, 1978).

Several studies have confirmed portions of Beck's cognitive theory of depression. The hypothesis that depressives negatively distort both their own performance and underestimate positive feedback on their performance has been repeatedly demonstrated, particularly in delayed recall (Wener & Rehm, 1975; Nelson & Craighead, 1977; Dobson & Shaw, 1981). The association between pessimistic thinking and depression is well established (La Pointe & Harrell, 1978; Lewinsohn, Larson & Munoz, 1982). However, the issue of whether or not negative cognitive style predicts depression remains confusing. Lewinsohn, Steinmetz, Larson and Franklin (1981) completed a longitudinal study and found that there was no difference in cognitive measures prior to depressive episodes between people who became depressed and people who did not become depressed. However, they also found that depressives with more negative cognitions were significantly less likely to improve during follow-up than depressives with fewer negative cognitions. Experiment 1 will test a different dimension of Beck's theory, which says that reconstructing negative thoughts about unpleasant

events from global, pessimistic, and hopeless thoughts into realistic, adaptive, and positive thoughts will alleviate depression. Also, Experiment 1 will test the effectiveness of two cognitive components of Beck's therapy and of Velten's Elation Mood Induction in alleviating depression.

## EXPERIMENT 1

Experiment 1 contrasts the Beck approach with Isen, Shalker, Clark and Karp (1978) who suggest that Beck's theory and therapy be expanded to include positive cueing. In this experiment positive cueing includes recording pleasant events, thoughts, and feelings, twice a day (Group 3) and reading 60 elation statements twice a day (Group 2).

### Method

#### Subjects

Eighty-nine moderately depressed self-referred students were recruited by advertisements and announcements on bulletin boards, in classrooms and through student newspapers. Of the 89 self-referred subjects, 55 met the acceptance criteria and 49 completed the experiment. Reasons for dropping out are listed on Table 1. The criteria for acceptance into the data

collection sample were self-reported depression, a minimum score of 6 on Lubin's Depression Adjective Checklist (DACL; 1967) or 8 on the Beck Depression Inventory (BDI; 1961), an absence of physical illness, an absence of the use of mood changing drugs, a willingness to work on the techniques assigned for 30-60 minutes a day for 7 days, and an absence of schizophrenic tendencies. Of the 49 who completed the experiments, 38 were women and 11 were men. The mean age was 30.7 with a range of 18-54. Clinical outcome studies often use a minimum criteria of 20 on the BDI so this is an analogue study. However, the mean on the BDI was 15.43 at pretesting, which is similar to a mean of 17.4 on the BDI reported for depressed outpatients by Fahy (1974). The disadvantages of the low BDI scores is outweighed by the fact that no illnesses, mood changing drugs, counseling, or current trauma were present to confound the results of the experiment.

Dependent Measures

1. Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock and Erbaugh, 1961). The internal consistency and validity of this widely used instrument for measuring unipolar clinical depression has been

well documented (Beck & Beamesderfer, 1974). This was the major dependent variable and was completed by subjects at the pretreatment (pre), postreatment (Post 1), posttreatment for Group 4, Waiting for Treatment Control (Post 2), and at the 3-month follow-up.

2. Depression Adjective Check Lists (DACL; Lubin 1965). The reliability and concurrent validity of this widely used measurement of mood is well-established (Lubin, 1965; Christenfeld, Lubin & Satin, 1978). Different forms of the DACL were given at the pre, Post 1, and Post 2 sessions.

3. Rotter's Internal-External Locus of Control Scale (Rotter IE). This measurement of people's expectancies for internal versus external control of reinforcement is a reliable and valid measurement of one aspect of cognition (Rotter, 1966). Two forms of the Rotter IE were generated by assigning odd-numbered questions to one form and even-numbered questions to the other form. This was done to avoid response consistency when subjects completed it 1 week apart. The Rotter IE was given at the pre, Post 1 and Post 2 sessions and scored for externality.

4. The Community Transaction Analysis (CTA; Doyle, 1975). This self-rating measurement of social

and individual activities has been used to measure community viability in community psychology research and was used here because it is a simple quick measurement of total activity level. It was presented at Post 1 and Post 2 sessions.

5. Self-rating Likert Scales on four mood states related to clinical depression: anxiety, depression, happiness and helplessness. The end points of the scale, composed of the numerals 1 through 10, were labelled "no anxiety" and "extreme anxiety" with similar terms for the other moods.

Procedure

Subjects were randomly assigned to the following groups:

Group 1, Beck's Reconstruction of Negative Thoughts

Group 2, Velten's Elation Mood Induction

Group 3, Beck's Recording of Positive Events, Feelings and Thoughts

Group 4, Waiting for Treatment Control

At the pretreatment session which lasted about 60 minutes, treatment group subjects received instructions on the technique they were to use twice a day for 15 minutes or more for seven days. Group 1 subjects were

given instructions to record unpleasant events, the emotions associated with the events, and the spontaneous, automatic thoughts they had about the situation. Then the subjects were taught to evaluate the spontaneous thoughts for rationality and pessimistic interpretations and to reconstruct the pessimistic thoughts into rational, adaptive and positive interpretations of events. This written assignment appears to be the central and salient part of Beck's therapy (Beck, 1976; Beck et al., 1979; Beck, Rush & Kovacs, 1975).

Group 2 subjects were given instructions to read Velten's 60 elation mood statements twice a day. Velten's statements include cognitive and affective or somatic statements. An example of a cognitive statement is, "When your attitude is good, then things are good and my attitude is good." An example of an affective statement is, "I feel great!" This treatment is an alternative cognitive treatment which modifies people's moods in 7-10 minutes (Velten, 1968; Hale & Strickland, 1976, and Strickland, Hale & Anderson, 1975). Also, this treatment is probably the most simple cognitive modification technique ever reported. Coleman (1975) found that characteristically depressed students became temporarily less depressed and more

elated when they read positive self-statements. Coleman's statements were based on Velten's but had been designed to eliminate all mention of mood and to be entirely cognitive in nature, such as, "I am a likeable person." Thus, reading Velten's statements or similar statements appears to be the most simple way to alter people's interpretation of themselves and of the world, and to reduce depressed mood on a temporary basis, at least.

Group 3 subjects were given instructions to observe positive events, feelings, and thoughts and to record them twice a day for 7 days. This technique is based on Beck's cognitive/behavioral therapy. The technique used in Group 3 was extrapolated from three parts of Beck's therapy, (a) Activity Schedule Making, (b) Increasing Pleasureable Activities, and (c) Mastery and Pleasure Ratings of the activities collected in the Activity Schedule. In Beck's therapy, the therapist and patient sometimes schedule activities for each hour of the patient's day. If this schedule indicates a lack of pleasureable activities, homework assignments to increase the number of pleasureable activities are given to the patient (Beck, Rush and Kovacs, 1975). Then the patient rates each activity according to how

masterful the subject felt or how much pleasure she or he experienced.

The problem that existed in designing Group 3 was to avoid behavior modification techniques such as the homework assignments to schedule activities for every hour and to increase pleasureable activities. The other problem was to retain the cognitive aspects of the treatment. The design of Group 3 includes the cognitive part of the three parts of Beck's therapy mentioned in the previous paragraph. Beck (1976) described the processes involved in the cognitive aspects of the three parts of this therapy as (a) the patients learn to see themselves as more masterful and less inept, and (b) the patients are distracted from depressing thoughts and painful affects to focusing attention on more adaptive activities, feelings, and thoughts.

Group 3 was designed to avoid the increased activity assignments inherent in Beck's technique, because it is possible that physical activity in and of itself may increase positive affect and decrease depression and anxiety (Ismail & Young, 1973; Jasnoski & Holmes, 1981; Wilson, Morley & Bird, 1980). Activities other than physical exercise are also related to moods.

Lewinsohn and Libet (1972), Lewinsohn and Graf (1973) and Rehm (1978) demonstrated a significant association between the number of pleasant activities in which a person engaged and the type of mood exhibited. Weissman and Paykel (1974) demonstrated that depressed patients engaged in fewer social activites and possessed fewer communication skills than normal controls. Beck (1967) found that depressed patients engaged in fewer activities in a long list of social and personal activities than normals, except for watching television. By avoiding the Beck assignments to increase activities, the purpose of the Group 3 design was a cognitive one of guiding the subjects to attend to positive events, feelings and thoughts, and to distract the subject away from the usual depressive tendency of attending to negative events, feelings, and thoughts.

Each subject was seen for two 1-hour sessions, 1 week apart. Experimenters were the author and four other psychology graduate students or graduates with a B.A., B.S. or M.S. in psychology who had taken classes in conseling techniques. At each session, subjects filled out various forms and completed measurements of depression, affect, and cognitive style explained in the section Dependent Measures. In the first session,

treatment subjects received instructions on the cognitive technique which they were to perform daily during the treatment week. The experimenters instructed the subject to practice the technique during the experimental session so the experimenter could make sure the subject understood the technique. Control group subjects received empathetic attention to their problems and the suggestion that they might feel better because depression is naturally cyclical and people often feel better after they have had a chance to discuss their problems. During the sessions, subject time and demand characteristics were approximately equal for all subjects. Control group subjects were seen for three 1-hour sessions because they received treatment after the posttest scores on all measurements were taken. The set of scores after treatment groups had completed treatment is labeled Post 1 on Table 4 and the set of scores taken after the control group had received treatment is labeled Post 2 on Table 4.

Follow-up questionnaire packets were sent by mail service to all subjects who met the criteria and satisfactorily completed their therapeutic technique. They were mailed on a date which was calculated to insure that the subject received the packet approximately 3

months after that subject had completed his/her posttreatment measurements.

Hypothesis 1 stated that the experimental groups would show lower scores at posttest than the control group on the BDI, the DACL, and self-rating measures of depressed mood, anxiety, helplessness, and locus of control (toward internality). Hypothesis 2 stated that experimental groups would show higher scores at posttest than control subjects on happiness and activity level. Hypothesis 3 stated that improvements would be maintained at the 3-month follow-up.

## Results

### Major Dependent Variable Results

An analysis of variance (ANOVA) was performed for all measures taken at pre and posttreatment sessions. One unusual result occurred. There was a significant difference between BDI pretest scores, in spite of random assignment of subjects to experimenters and conditions. Pretest BDI means for the Groups 1-4 were 15.09, 16.45, 11.08, and 18.29 respectively, $F(3,48) = 3.62$, $p<.02$. All other pretest comparisons were non-significant, indicating that the groups were relatively similar to one another. An analysis of covariance (ANCOVA) was

computed for the BDI posttreatment to control for the significant difference on the BDI pretest scores.

On the posttests there was a significant difference for all dependent measurements in the hypothesized direction, except on activity level and self-rated depressed mood. There was a trend in the hypothesized direction on self-rated depressed mood, but not on activity level. Tables 1, 2, 3, and 4 summarize data on all measurements.

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Insert Table 1, 2, and 3 about here.

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A perusal of Table 1, 2, and 3 indicates that Group 2, Velten's Elation Mood Induction and Group 3, Recording Positive Events, Feelings, and Thoughts, were more effective in alleviating signs of depression than Group 1, Reconstructing Negative Thoughts, and Group 4, Waiting for Treatment Control. Apparently all treatment groups alleviated depressed mood as measured by the DACL and alleviated feelings of helplessness, which have often been correlated with depression. Therefore, all cognitive interventions used here affected some feelings in the predicted directions. Group 1, Recon-

structing Negative Thoughts, did not affect the measure of the depressive syndrome (BDI) and most other measurements to the extent that Group 2, Velten's statements did (see Tables 1, 2, and 3.) Also, Group 1 did not affect the cognitive dependent variable, the Rotter Internal-External Locus of Control Scale (Rotter IE) as much as Group 3 did. Table 4 gives relevant data for Rotter IE. Further confirmation of the weakness of the reconstruction of negative thoughts is shown in analysis of the control group which received the reconstruction treatment after the postexperimental measurements were taken (see Table 4).

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Insert Table 4 about here.

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Results on Independent Variables

To determine whether variables other than the independent variables of the cognitive treatment groups affected the results of the experiment, a two-way analyses of covariance (ANCOVA) was performed by group on BDI posttreatment scores and each of the following factors, respectively: sex, experimenter(5), former acquantance with the experimenter, degree of liking for the experimenter, and degree of criticism received from

the subject's family. The F ratio was significant for treatment in all the analyses but not for any of the other variables. However, sex approached significance, $F = (1,48) = 4.018$, $p < .052$. An analysis of covariance was performed for each sex separately. The mean posttest BDI score for the women was 9.16 and for the men was 11.36. For women, the treatment effects were significant, $F(3,37) = 6.145$, $p < .002$. For men, the treatment effects were not significant, $F(3,10) = 1.048$ $p < .428$. The subjective opinions of all experimenters were that the male volunteers were more variant from normal in thinking and had more severe problems than female volunteers. Unfortunately, the numbers of males in each group were so small and unevenly distributed (one in Group 1, one in Group 2, five in Group 3 and four in Group 4) that few judgments could be made about the effects of sex on the experiment. Posttest means for each sex in each group are listed on Table 3.

Follow-Up Results at 3 Months

On the 3-month follow-up, 23 subjects or 47% of the total sample of 49 who had met the criteria and satisfactorily completed the experiment, returned the questionnaires and measurements. Because of the small number of subjects available at follow-up, caution must

be used interpreting the results. Nevertheless, the posttreatment means for the 49 subjects were similar to posttreatment means for the 23 subjects available at the 3-month follow-up and were as follows: Group 1, 10.91, 10; Group 2, 7.09, 6.33; Group 3, 6.46, 7; and Group 4, 13.64, 11.67 (The larger sample is listed first). Because the control group received the treatment technique of Beck's Reconstruction of Negative Thoughts after the posttreatment scores were recorded, it no longer acted as a control at follow-up; furthermore, each subject in Group 4, the Waiting for Treatment Control, was seen on three occasions by an experimenter over three weeks rather than being seen on two occasions over two weeks as subjects in Group 1, 2, and 3 were. Therefore, it cannot be assumed that Groups 1 and 4 were similar at follow-up even though they has received the same treatment technique before the follow-up. Therefore, follow-up analyses were done only on the three treatment groups. A 3 X 2 analysis of variance (ANOVA) on the 3 treatment groups, with repeated measures over time, was performed. The ANOVA indicated no significant differences over time between the posttreatment and follow-up, $F$ (2,14) = .09. Thus, improvement was apparently maintained at follow-up. An

analysis of covariance was performed on the three treatment groups with prescores covaried out and there were no significant differences between the three treatment groups at the 3-month follow-up, $F = (1,16) = .956$. With BDI prescores and BDI posttreatment scores covaried, there were no significant differences between treatment groups, $F = (1, 16) = .704$.

Of the 23 subjects available at follow-up, all but one person (Group 1) said the technique had been helpful. All but four said they would use the technique in the future to combat depression (dissenters consisted of one subject in Group 1, one subject in Group 2 and two subjects in Group 4 [treatment was the same as in Group 1, Reconstructing Negative Thoughts]). One question was asked at the pretreatment time and at the follow-up, "If you get into a depressed mood or some other miserable mood, do you know how to talk yourself out of the mood?" Nine of the 23 subjects answered that question "Yes" at the pretest and 21 out of 23 answered "Yes" at the follow-up. Fourteen said "No" at the pretest and 2 said "No" at the follow-up. A test for correlated proportions (Hays, 1963) was performed and a significant difference was found between the pretest and follow-up. ($p = .00048$, $p < .01$),

indicating that most subjects learned to "talk themselves out of depression," apparently because of the experiment.

## Discussion

### Hypotheses Generally Confirmed for Groups 2 and 3

Hypotheses 1 and 2, which predicted significant improvement in all treatment groups as compared to the control group, were confirmed for the main dependent variables, BDI and DACL, and for three of the six other measurements for Treatment Group 2, Velten's Statements. To a lesser degree, Group 3, Positive Recordings, positively affected most of the measurements. As far as posttreatment scores are concerned, Group 1, Beck's Reconstruction of Negative Thoughts, was not particularly effective in alleviating depression and correlated moods and activities as Hypothesis 1 and 2 had predicted. Hypothesis 3 which predicted that all improvements would be maintained at the 3 month follow-up was confirmed. At the 3 month follow-up, all treatment groups appeared to have been of equivalent value; an alternative explanation would be that the cyclical nature of depression led to the alleviation of mild depression 3 months hence, though it could also be argued that some subjects would be depressed again in 3

months due to the cyclical nature of depression. It appears that reading elation self-referent statements twice a day and making records of positive events, feelings, and thoughts twice a day, both effectively alleviate depression. It also appears that short written and verbal instructions to identify negative feelings and thoughts and reconstruct the pessimistic thoughts, were not particularly effective in alleviating depression on the short-term 1-week basis.

Puzzling Results

It is unclear as to why the self-rating measure of depressed mood did not reach significance, $F$ (3, 48) = 1.324, $p$ <.279. The DACL, which is also a measurement of depressed mood, did reach significance on the analysis of variance, $F$ (3,48) = 4.24, $p$ <.0096. Furthermore, the measurement of the syndrome of depression which includes depressed mood, the BDI, also showed a significant difference on the analysis of covariance, $F$(3.48) = 55.74 $p$ <.001.

The DACL (Christenfeld, Lubin & Satin, 1978; Lubin, 1965, 1967) and the BDI (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) have both been shown to be valid and reliable measurements of depression, whereas the particular self-rating measurement of depressed mood

used here had not; therefore, it can be stated with confidence that Group 2, Velten's Statements, alleviated depressive mood in these depressed subjects more than the control group. Group 3, Positive Recordings also alleviated depressed mood though it was only marginally significant on the BDI.

The fact that the self-rating measurement of activity level did not reach significance is consistent with the finding of Harmon et al. (1980) that monitoring activity level had greater effects on mood than monitoring mood had on activity level. The lack of significant results on the self-rating of activity is also consistent with the finding of Rush, Kovacs, Beck, Weissenburger and Hollon (1981) that patients in Beck's cognitive therapy improved in views of the self and in moods before changes in vegetative and motivational symptoms. Their measure of motivational symptoms included amount and quality of work accomplished recently so this was very similar to activity level. It is reasonable that more than one week's treatment would be needed for activity changes.

Two questions are raised by the results of this experiment:

1. If cognitive theorists such as Beck are

correct in assuming that pessimistic schemata must be altered to reduce depression, why would reading positive statements and recording positive feelings, thoughts and events be more effective than reconstructing negative thoughts?

2. Velten's Elation Mood Induction had never been used in a therapeutic context before; could such a simple technique become a viable therapy technique for alleviating depressed mood? Could these positive results be replicated?

Inadequate Training for Group 1?

On the first question, it seems possible that written take-home instructions and one 30-minute instruction session were not sufficient to teach these mildly depressed subjects in Group 1 to evaluate the rationality of their thoughts. Beck (1967), Taylor and Marshall (1977) and others have noted that it is difficult to convince depressed persons that their negative thoughts distort reality, to teach them to evaluate their thoughts and to develop rational and adaptive alternatives. A few subjects in Group 1 expressed

misgivings about their ability to evaluate their thoughts when they were alone. Thus, a 30-minute training session on evaluating the rationality and pessimism of spontaneous thoughts probably is not adequate, even though these subjects were less depressed than many depressed inpatients. Therefore, this experiment may not have been a fair test of the component of Beck's therapy which reconstructs negative thoughts.

Experiment 1 was apparently a fair test of positive cueing in Groups 2 and 3. It is interesting that all cognitive treatments positively affected the self-rating of helplessness. However, the hypothesis that treatment groups would be more internal on Rotter's scale than the control group was true only for Group 3, but not for Group 1, $F = 4.74$, $(3,45)$, $p < .006$ (See Table 4 for further information on Rotter pre and post scores and Table 3 for pairwise comparisons).

Rotter's concept of external control is that subjects scoring high on externality will believe that they have little or no control over life events and therefore, little motivation to engage in goal-seeking behavior. A low score would indicate internality, which indicates belief that the subjects have great control over what happens to them and high motivation

for goal-seeking behavior. This concept fits well with Beck's descriptions of depressed patients who exhibit a negative pessimistic cognitive approach to life, including the idea that the patient is helpless and action is useless to stop the crunch of negative events and failures (Beck, 1967; Kovacs & Beck, 1978).

Abramowitz (1969) tested and confirmed the hypothesis that external control correlates positively with depression. Abramowitz's subjects were university students so the subject population was similar to the study reported here. Leggett and Archer (1979) confirmed this in psychiatric inpatients.

On this short-term 1-week basis, it appears that Group 3 altered the subjects' locus of control but that Group 1 did not, at least in the short term. In this experiment, positive focusing altered cognitive style more than reconstructing negative thoughts.

Mood-Memory Congruence Favored Groups 2 and 3 over Group 1?

Positive focusing acts as a memory retrieval cue? Another possible answer to question 1 on why Groups 2 and 3 were more effective than Group 1 is that reading Velten's statements or focusing on the positive aspects of one's daily life may act as retrieval cues for memory or for any congruent thoughts, mood, or action. These

positive memory cues may elicit a person's positive memories, thoughts, feelings, and even a positive world view. This hypothesis has been supported by studies which show that positive events and reading elation statements elicit more positive memories and positive interpretions of a variety of stimuli than neutral conditions or reading negative statements. Isen, Shalker, Clark and Karp (1978) induced positive moods by giving 50% of their subjects free gifts. Subjects who received free gifts rated their personally owned products as significantly better than those who had not received free gifts. Teasdale, Taylor and Fogarty (1980) and Madigan and Bollenbach (1982) found that normal subjects reading positive suggestion statements recalled more positive personal memories than subjects reading negative statements. Bower (1981) obtained similar results with a hypnotic mood inductions. Madigan and Bollenbach (1982) also found that subjects reading positive statements gave more positive word associations to stimulus words than subjects reading negative statements.

Reconstructing negative thoughts may act as memory retrieval cues for unpleasant memories and negative distortions. The converse of the positive infusion or

cognitive loop hypothesis in the previous paragraph is that negative events may act as retrieval cues for negative memories. If this occurs, it explains why Group 1 subjects did not improve as rapidly as Groups 2 and 3. The hypothesis that negative events or focusing on negative feelings and thoughts may act as retrieval cues for negative memories and other cognitions is consistent with the finding that inventories with a preponderance of negative self-references disturb subjects (Amrine, 1965) and that subjects become temporarily depressed when reading negative self-referent statements (Velten, 1968; Hale & Strickland, 1976; Madigan & Bollenbach, 1982). The concept that concentrating on negative thoughts or events increases depression also fits with results of interviews of normal adults who were asked what makes them feel worse when they're depressed; the most frequent replies were "being alone, inactivity, and thinking about the problem that caused the depression" (Rippere, 1980, my italics).

Beck's major technique requires attending to the events that evoke depression, which, if not successful, risks creating more depression. Beck and his colleagues agree with the idea that negative events or

thoughts act as retrieval cues for more negative cognitions because they hypothesize that negative events may trigger a depression-prone person's early unpleasant memories and the helpless negative cognitive schemata that is often associated with early unpleasant experiences. For example, the death or neglect of a parent is something over which a child has no control; the child in those circumstances would develop a helpless and hopeless negative schemata about the world. The loss or neglect of a lover or friend in adult life may trigger the memory of the loss or neglect of the parent along with the helpless cognitive schemata (Beck, 1967; Beck, et al., 1979; Kovacs & Beck, 1978).

Several experiments have produced data that lend support to the above hypothesis. Beck (1961) asked depressed and non-depressed psychiatric patients to recall their three earliest memories. Two blind judges rated the depressed patients' memories as significantly more "masochistic" than the memories of non-depressed people. Lloyd and Lishman (1975) studied memory retrieval in depressed patients by correlating severity of depression with recall of positive and negative memories. They found that reaction time to recall

pleasant memories increased for patients with more severe depression.

While it is relatively certain that depressed patients remember more negative or unpleasant memories than non-depressed people, it is not clear why. It may be that depressed patients have more negative memories because more negative events have occurred in their lives, a phenomenon demonstrated in studies by Brown and Harris (1978) and Paykel, Myers, Dienelt, Klerman, Lindenthal and Pepper (1969). On the other hand, it may be that negative events change the memory retrieval process in sensitized individuals as suggested by cognitive/behavioral theory (Beck, 1967; Kovacs & Beck, 1978). Perhaps both occur. Therefore, the hypothesis that negative events act as retrieval cues for negative memories, moods or schemata is speculative at this time. However, it is clear that dysphoric moods induced in the laboratory elicit more negative perceptions (some of these studies were cited above). Furthermore, the effect of a depressed mood is not just one of eliciting more negative memories and less positive memories than a good mood. Beck's hypothesis that people experiencing depression negatively distort their view of themselves is true of induced depressed moods

in the laboratory. Natale and Hantas (1982) found that hypnotic sad mood induction not only decreased recall of positive memories and increased negative memories but it created a bias to recall false negative self-descriptions.

Beck and his colleagues would probably argue that ruminating on the problem and changing your pessimistic interpretation of events to something adaptive or constructive are very different. Teasdale and Fennell (1982) found that reconstructing negative thoughts alleviated depressed mood more than exploring negative thoughts in a within-subjects design experiment during cognitive therapy for depressed patients. The rank order of results in improvement in Experiment 1 fits with the Teasdale and Fennell (1982) results and is as follows: 1. reading elation statements, 2. recording positive events, feelings and thoughts, 3. reconstructing negative thoughts, and 4. control group which explored personal problems. Both experiments lend support to the cognitive loop hypothesis (Isen, et al, 1978) which predicts mood-cognition congruence to the extent that the most positive cognitions would be associated with the most positive moods in a gradually descending scale to the congruence of negative cogni-

tions and negative moods. Velten's elation statements (Group 2) would be more likely to be totally positive than the positive feelings and thoughts of mildly depressed people that were the focus in Group 3. Reconstructing negative thoughts would be more positive than merely exploring the problems and thoughts as was done in the control group, Group 4.

Mood effects of positive recording. The positive results of Group 3, Recording Positive Events, Feelings and Thoughts, were replicated in an experiment using a similar technique but an entirely different experimental design. Harmon, Nelson, and Hayes (1980) found that depressed persons who self-monitored either activity or mood approximately 11 times per day reported increases in pleasant activities and decreases in depressed mood, with self-monitoring of activity generally producing slightly better results. Mood was measured by the DACL immediately after the monitoring. Differences between this study and the Harmon et al. study are that subjects in this study completed the record of positive events only two times per day and filled out the DACL and the BDI at the posttest time rather than immediately after the self-monitoring of activity. Therefore, this study demonstrated a longer

lasting effect from recording pleasant events. It should be noted that Group 3 depressed subjects recorded only pleasant events, thoughts, and feelings while the Harmon et al. depressed subjects recorded descriptions of all activities or moods.

Another study that had similities to the Group 3 results was a comparitive treatment study in which one group of depressed students were instructed to increase pleasant activities for 30 days, which resulted in a significant alleviation of depressed mood (Turner, Ward, & Turner, 1979). Other studies of the daily self-monitoring of activity had not produced positive changes in depressed persons (Hammen & Glass, 1975; Jackson, 1972; Lewinsohn, 1974). Harmon et al. (1980) concluded that these studies failed partly because global self-monitoring of mood or activities was done on a daily basis rather than the hourly basis required for the Harmon et al. experimental groups. A replication of the negative results of the former studies occurred in the Harmon et al. control group because that group filled out Lubin's Depression Adjective Checklist (DACL) and Lewinsohn's Pleasant Events Schedule once a day. The experimental groups in the Harmon et al. study monitored activities or mood eleven times

per day; monitoring consisted of writing descriptions of the activities and rating their pleasantness. In this study, subjects monitored activities twice per day, which consisted of writing descriptions of pleasant events and thoughts, and recording feelings. It is reasonable to conclude, therefore, that the number of times monitoring occurred and the proximity of the monitoring to the testing of the dependent variables was not as critical as Harmon et al. concluded. It is possible that monitoring pleasant events, thoughts, and feelings twice a day in this study was equivalent in mood induction power to the Harmon et al. program of monitoring all activities or moods 11 times per day and rating the pleasantness of each activity or mood. It is also possible that monitoring pleasant things once a day may not have been sufficient to significantly alleviate signs of depression.

Another possible rationale for the effectiveness of monitoring activities and moods that was presented by Harmon et al. (1980) was that

> the self-monitoring procedure cues [for the subject] the environmental consequences contingent on the target behavior. . . . They [the subjects] may have been sensitive

> [through learning during monitoring] to the negative environmental consequences of depressive behavior (p. 37).

This may have been true for the Harmon et al. subjects, but could not have true of these subjects because they were monitoring only pleasant activities, thoughts, and feelings. Group 3 subjects could have learned the positive environmental consequences of adaptive behavior and focusing on positive things.

The critical factors as to whether monitoring has positive effects on mood or not probably included (1) the fact that describing pleasant events is more interesting and less annoying than filling out the lengthy and time-comsuming Pleasant Events Schedule, which was used in the unsuccessful Harmon et al. control group and in the Lewinsohn (1974) study (2) motivation and hope were probably greater in the Harmon et al. and in this study than in the Hammen and Glass (1975) study because subjects in that study had not sought treatment, whereas the former two studies were described as therapeutic (However, the Jackson, 1972 and the Lewinsohn, 1974 studies were therapeutic in nature so this was probably not a critical factor) (3) the number of times the monitoring took place per day,

which was slightly greater in this study and much greater in Harmon et al. (1980) than in the unsuccessful studies and (4) the focus on positive events, feelings and thoughts diverted attention from hopeless, pessimistic ruminations and miserable moods and triggered pleasant thoughts and moods.

It is interesting that the unsuccessful Hammen and Glass (1975) study required subjects to increase pleasant activities; not only did this not alleviate depression but the subjects reported that the pleasant activities lost some of their former pleasantness. Hammen and Glass concluded that increasing pleasant behavior was not sufficient and that the cognitive elements must be changed.

The differences between Hammen and Glass study and Group 3 are subtle. Hammen and Glass asked depressed subjects to fill out Lewinsohn's Pleasant Events Schedule daily and to increase the number of pleasant activities. Group 3 subjects in this study were asked to record and describe all events (including thoughts, daydreams etc) that evoked pleasant feelings and to describe the thoughts and feelings that were associated with the events. The critical element that existed in Group 3 was to pay attention to and to savor everything

that was associated with pleasant feelings. This latter is a subtle improvement ~~over~~ simply recording pleasant activities and could be communicated ~~more~~ as much through experimenter's attitude ~~than~~ as through experimental design. Otherwise, the superior results of the instruction to increase pleasant activities in Turner et al. (1979) over Hammen and Glass, (1975) and Lewinsohn (1974) remain unclear.

Conclusion on Experiment 1

The positive results for Group 3 (and to a lesser extent, Group 1) in this experiment reaffirmed the efficacy of the cognitive components of Beck's therapy. These results indicate that positive focusing is an essential element in Beck's cognitive therapy. More important, the results demonstrate that depression can be alleviated in mildly depressed people who receive 30 minutes of instruction in Beck's techniques and use one technique for 30 minutes a day for 5-7 days. Such a short instruction period and intervention program indicates that inexpensive short-term cognitive therapy can be provided for mildly depressed clients if positive focusing is the major emphasis.

It is perhaps more surprising that Group 2, reading Velten's elation statements, was efficacious.

Previous work has shown that reading Velten's positive statements temporarily induced elated moods for perhaps 15 to 30 minutes. This experiment shows that Velten's statements can alleviate depression as a mood and as a syndrome (as measured by the BDI) on a somewhat longer-term basis than had been previously reported. Two to 16 hours had elapsed from the time Group 2 subjects had read Velten's statements to the time posttreatment measurements were taken and 3 months went by before follow-up measures were taken. This experiment lends support to the Beck hypothesis that there is a high correlation between negative cognitions and depressive symptoms and to the Isen et al. hypothesis that positive cognitions and affect have reciprocal influence on one another.

Velten's statements had not previously been used in a therapy format. Also, Experiment 1 did not demonstrate the processes through which the statements operated in order to alleviate depression as a syndrome and as a mood. Therefore, it seemed useful to replicate the Group 2 part of Experiment 1.

## EXPERIMENT 2

Experiment 2 was conducted to replicate the Velten versus waiting-control group portion of Experiment 1.

It was also conducted to ascertain the processes through which the elation statements operate by testing changes in cognitions as measured by Rotter's Locus of Control Scale (1966), by a test of irrational thoughts as hypothesized by Ellis (Newmark, 1972), and by a test of the interpretations and automatic thoughts the subject has concerning the unpleasant events of one day. Subjects were also asked if they were able to talk themselves out of miserable moods and if so, how? The latter question and the Rotter IE were used in Experiment 1 so that part was a replication.

## Method

### Subjects

Eighty-four moderately depressed self-referred volunteers from the community were recruited through newspapers and bulletin board announcements; 65 met the criteria of self-reported depression, a score of 10 or above on the self-rating depression scale or 6 on the DACL, the absence of the same conditions noted in Experiment 1 and completing the experiment satisfactorily through the posttest session. Of these 65 subjects, 59 were women and 6 were men, with a mean age of 35.14 (range 18-59). The difference between these subjects and Experiment 1 subjects is that status as a

college student was not required in Experiment 2.

Procedure

The treatment group received the same technique as Experiment 1, Group 2, reading Velten's elation statements twice a day for five to seven days. Reading the statements ten times for at least five days was the minimum accepted as completing the technique correctly and for inclusion in posttreatment data.

Dependent measures were the BDI, the Rotter IE, a test of Ellis's irrational thoughts (Newmark & Ziff, 1977), a test of automatic thoughts related to unpleasant events designed by the author and patterned after Beck's patient self-recording charts of unpleasant events and associated thoughts, and self-rating Visual Analogue Scales of anxiety, helplessness, self-esteem and activity level.

## Results and Discussion

Experiment 2 successfully replicated a portion of Experiment 1 and indicated that reading Velten's elation statements twice a day for a week alleviated depression significantly more than a waiting-group control: BDI post scores, $t$ (63) = 2.03, $p < .05$ (See Table 5 for more complete data).

Reading Velten's statements also positively af-

fected cognitive style as measured by the test of irrational thoughts a la Ellis (Newmark, 1972). The treatment group subjects were significantly more rational than control subjects at the posttreatment session ($t$ (63) = 2.24, $p$ <.05).

An additional measurement used in this experiment to attempt to ascertain the cognitive processes through which Velten's statements operate was the test of automatic thoughts and interpretations about the unpleasant events of one day in the subjects' lives, the day posttests were given. This measurement was extrapolated from the method used to identify cognitive style in Beck's therapy package (1975). The subject recorded unpleasant events and the spontaneous thoughts they had about the events for one day. The events and the automatic thoughts about them were typed on a separate paper for each subject and arranged in a random mixture of treatment and control subjects. Blind judges rated the thoughts on a scale of negative to positive attitude of -5 to +5. There was a significant difference in the blind judges' ratings between the experimental and control groups (treatment $M$= -.838; $SD$ = 2.30, $N$ = 18; control M = -2.15; $SD$ = 1.166; $N$ = 19; $t$ (35) = 2.20; $p$<.05) [The number of

subjects here was lower than on the other dependent measurements because of subject error in completing and returning the forms by post]. This indicates that the Velten statements had a powerful and relatively long-lasting influence on cognitive style. The assignment to keep a record of unpleasant events and spontaneous thoughts about them during one day might conceivably have reversed the positive affect induced by the Velten statements; the significant results on this dependent measurement indicated that it probably did not. The other affective and cognitive measures yielded equivocal results although trends were in the hypothesized direction (see Table 5).

A *t* test for correlated observations was computed on the BDI for the control group scores, Post 1 versus Post 2 (Post 1 is the occasion after treatment groups finished their treatment and Post 2 is one week later after the control group finished their treatment). Results indicated that the subjects significantly improved as predicted, $t(10) = 2.27$, $p < .05$ (See Table 6 and compare these results to Experiment 1, Table 4, which shows that the control group receiving treatment which reconstructed negative thoughts, did not significantly improve.

Because of these positive results, it was possible to pool all subjects for the posttreatment versus the 3-month follow-up BDI scores. As predicted, there was no significant difference between the posttreatment and follow-up scores, $t$ (29) = .33, $p$ >.05, <.25. Subjects who filled out the follow-up packet had maintained the improvement they showed at the posttreatment session. The results must be viewed with caution, however, because only 46% of the subjects returned the packets; most of the uncompleted packets were returned by the mail service due to the lack of an appropriate forwarding address.

It appears that positive cognitions "tend to keep the person thinking about positive things" and such a person "does tend to estimate situations more positively" (Isen, et al., 1978). Beck's hypothesis that cognitive style is relatively permanent and that reconstructing negative thoughts is the salient part of his cognitive/behavioral therapy is open to question because of the lack of efficacy of Group 1, Experiment 1, and the efficacy of reading ~~positive~~ elation statements and focusing on positive events, feelings and thoughts (partially replicated in Experiment 2, in Harmon et al., 1980 and in Turner et al., 1979).

Reading Velten's elation statements apparently produces positive changes in cognitive style and attitudes as well as temporarily inducing positive moods as Velten (1968) and others have demonstrated. Furthermore, the positive adaptive cognitions produced are not rote renditions of Velten's statements but are more positive or adaptive interpretations of live events

At the pretreatment occasion, 12 out of 30 subjects indicated that they were able to talk themselves out of miserable moods and at the follow-up occasion, 3 months after the treatment was completed, 27 of the 30 subjects said they could talk themselves out of miserable moods (30 is the number of subjects who returned adequate follow-up data). A test for correlated proportions (Hays, 1963) was performed and a significant difference was found between the pretest and follow-up answers ($p = .00000076$, $p < .031$), indicating that subjects had learned to talk themselves out of miserable moods.

It is puzzling that the self-rating of helplessness and the self-rating of anxiety showed a significant difference between the Velten treatment group and the control group in Experiment 1 but not in Experiment 2. Four factors may have influenced this less successful result in Experiment 2: The subject samples were slightly different, the rating scales were slightly different, experimenters were less experienced, and the actual control the subjects had over life events may have been less. The sample was taken from a larger population in Experiment 2 in that any depressed adult who could read a newspaper and meet the criteria was accepted. The criteria of acceptance was similar in Experiment 1 except that only students at the community college or university were accepted in Experiment 1 and any adult meeting the criteria was accepted in Experiment 2. It is possible that students have more control over their lives or more ability to learn cognitive information than community members. The dependent measurements which reached significance in Experiment 1 but did not reach significance in Experiment 2 were anxiety and helplessness which conceivably could relate to the amount of control the people can actually exercise over their lives.

Another factor that could have influenced the significant results in more dependent measures in Experiment 1 than in Experiment 2 is that the experimenters in Experiment 1 were more experienced. All the experimenters in Experiment 1 had had counseling experience and Master's or Bachelor's degrees with a concentration in counseling psychology. Most of the experimenters in Experiment 2 were undergraduate students at the community college in a paraprofessional counseling class.

Neither Experiment 1 nor 2 found significant differences between the group that read Velten's statements and the control group on activity level or locus of control. Recent experiments concerning locus of control have found rather more complicated relationships than a positive relationship between externality and depression. O'Leary, Donovan, Cysewski and Chaney (1977) and Evans (1981) found that subjects who reported minimal control over events and external locus of control (low control externals) were significantly more depressed than high control externals, low control internals, or high control internals. Evans (1981) also found that high control internals experienced the least depression (O'Leary et al. did not find these

subjects significantly different from low control internals or high control externals). It is reasonable to assume that how much actual control a subject has recently had over important life events is as important to the subject's depression, anxiety, and helplessness levels as belief about whether control usually comes from the person or from external factors.

## GENERAL DISCUSSION

There are subtle differences between the Beck-Kovacs theory of the cognitive influence on mood and depressive syndrome and the Isen et al. cognitive loop hypothesis. The cognitive loop hypothesis may fit the results of these experiments somewhat better than the Beck-Kovacs theory.

### Summaries of Relevant Portions of the Beck-Kovacs and Isen et al., Theories.

Beck and Kovacs emphasize the precedence of the influence of cognition on moods and behavior which can be seen in the following quotes.

> My initial finding has been that those unreported thoughts (negative) preceded an emotional state (Beck, 1976, p. 33).
>
> Cognitive structures are relatively enduring

> characteristics of a person's cognitive organization. They are organized representations of prior experience. . . . It appears that most of these schemata (negative schemata of depressed patients) contain erroneous conclusions which stem from the patients' earlier years and which have remained fairly constant through years of living. . . . Although cognitive structures appear to have some of the characteristics of personality traits, they can be modified (Kovacs & Beck, 1978, pp. 526, 529 & 530).

Thus, it is clear that Beck and Kovacs hypothesize the precedence of cognition in the development of depression; cognition is the probable cause of congruent moods and body state; cognitive style and structure is relatively permanent but can be changed through intense skillful cognitive/behavioral therapy.

In contrast to Beck's theory, Isen et al. (1978) propose that cognitions, moods, or actions each influence the others in congruent ways. Cognitive style and structure can change rapidly depending on what

events occur and what material is assessed in memory, etc.; they label this concept the cognitive loop hypothesis because cognitions, moods and behaviors are reciprocal in influence. Harmon et al. (1980) demonstrated that monitoring moods or activities influenced the other phenomena, suggesting a reciprocal relationship between mood and activity.

The Beck theory indicates that depression-prone individuals have experienced many unpleasant events in which they are helpless; they may have learned negative attitudes because their own actions were ineffective and/or because acquaintances modeled negative cognitive styles. However, Isen et al. (1978) note that experiments with normal people have demonstrated more evidence that positive events trigger positive memories, moods, behaviors and attitudes than that negative events trigger congruent modalities. The tendency toward the negative cognitive loop exists but these normals "may actively try to counter this tendency" (Isen, et al., 1978, p. 10). This probable tendency was illustrated by a spontaneaous comment made after a Madigan and Bollenbach (1982) experiment which attempted to induce either elated or depressed moods by asking subjects to read Velten's elation or depression

statements. One subject in the depression group said to a friend, "Im so proud of myself for not becoming depressed while reading those awful statements. Two years ago, I would have been depressed after reading such statements. Now, I can fight it." Furthermore, in the Madigan and Bollenbach experiments which used depression and elation statements, more of the elation group subjects exhibited moods that were congruent with the statements than did the depression group subjects; this was noted in the Madigan and Bollenbach (1982) and the Bollenbach and Madigan (1982) experiments.

Isen et al. (1978) suggest that depressives, in contrast to others, are deficient in their ability to "fight" the negative cognitive loop.

> The oft-quoted clinical observation that depressed patients do not seem to see positive aspects of even normally positive situations may reflect, in fact, the positive material's relative inaccessibility under those conditions of recall (namely depression). This interpretation suggests that one important aspect of therapist intervention in the cognitive process may be to cue

> positive material that the depressed person has difficulty in recalling (Isen et al., 1978, p. 10).

From the various studies of their own and others, Isen et al. note a positive bias in the self-views and attitudes of normals. This was confirmed in a study of the self-perceptions of social skills of depressed and non-depressed subjects compared to observer ratings; the normals rated their social skills as more competent than observers did; depressives rated their skills in the same way observers did (Lewinsohn, Mischel, Chaplin & Barton, 1980).

The ideal goal of therapy for depressives may not be to teach them to view themselves and the world in realistic and logical ways as Beck suggests (1967, 1976) but to view themselves and their skills with a positive bias as normals do. The focus on positive events, feelings and thoughts in Group 3 and reading positive statements in Group 2, Experiment 1, would appear to do what Isen et al. suggested, "cue postive material" and make a positive mood and attitude more accessible to depressed persons.

Clark and Isen (1982) use two current memory theories to illustrate how the cueing, which activates

negative and positive memories, mood, thoughts and behaviors, may take place. One is the storage bin model (Wyer & Strull, 1981). Incoming information is coded in ways similar to the way analagous previous experiences and concepts were coded. Material coded similarly to the new material is retrieved and placed at the top of the bin with the new event. Positive events, behaviors, or moods might access material coded as happy, lucky, contented, or pleasant.

The other current memory theory that might explain the cognitive loop hypothesis is the concept that memory is accesed through a collection of nodes (Shiffrin & Schneider, 1977). Clark and Isen hypothesize that when material is stored in memory, any associated feeling is also stored with it.

> Some nodes in memory represent feeling tone. Attached to such nodes would be behaviors, objects, situations, or episodes that produced or were associated with a given feeling tone (1982, p. 85).

Presumably, one such node stimulates all nodes with similar feeling tones. Experiments 1 and 2 lend support to the Isen et al. hypothesis because cognitive and affective changes were brought about within

minutes, hours, or days and were long lasting enough to affect posttreatment and follow-up measurements taken several hours and 3 months after the "positive cueing".

It is important to note that the theories of Beck-Kovacs and Isen et al. are compatible in many ways. It is possible that cognitive structures are both relatively permanent, difficult to alter and relatively easy to remove from consciousness through positive cueing or memory retrieval techniques. The technique which Beck most highly recommends for changing the relatively permanent negative cognitive structures, reconstructing negative thoughts, was not efficacious in Experiment 1; positive cueing was efficacious in both experiments. This result in combination with a recent study by Beck's group lends support to the Isen et al. cognitive loop hypothesis. The study by the Beck group showed that depressed patients in cognitive therapy changed positively in the following sequence (1) hopelessness, (2) mood, (3) self-view, (4) vegetative symptoms, and (5) motivational factors which included work activities. This order was not present in patients receiving anti-depressant drugs where symptoms seemed to change in random order. The Beck group concluded that. . .

> mood and views of the self and future appear to relate heavily to each other; they behave as a symptom cluster that is distinct from vegetative and motivational symptoms. Thus, an interaction between mood and views of the future and self may be inferred... (Rush, Kovacs, Beck, Weissenburger & Hollon, 1981).

If further evidence of this kind is forthcoming, it appears that the Beck group will revise their theory toward the Isen et al. cognitive loop theory.

Because of the short instruction session and treatment time (1 week) and the analogue nature of these experiment, the conclusion that cueing positive materials by focusing on positive events, thoughts, and feeling and reading positive suggestions statements, are more effective than reconstructing thoughts, must remain tenuous. Perhaps positive cueing is more effective in eliciting or accessing positive moods and attitudes that exist somewhere in the person's repertoire and memory bank; reconstructing negative thoughts may be more effective in enabling people to cope with the most stressful times of life and for changing rela-

tively permanent pessimistic cognitive schemata. It is reasonable that the latter task would take longer than the 1-week intervention used in this study.

## Conclusion

In general, Experiments 1 and 2 confirmed Beck's cognitive theory that cognitions influence mood and other symptoms of clinical depression and the Isen et al. (1978) that cognition and mood reciprocally influence one another. Specifically, positive cognitions alleviated signs of depressive syndrome and increased rational and adaptive attitudes and cognitions in depressed subjects. The process through which this occurs is partially explained by the more positive thoughts that experimental subjects in Experiment 2 had about the unpleasant events in one day of their lives, posttreatment.

The superiority of positive focusing over negative reconstruction. In Experiment 1, Groups 2 and 3 more effectively alleviated symptoms of the depressive syndrome as measured by the BDI and increased internality on the Rotter IE than Group 1 did; this supports the view that encouraging depressed persons to focus on positive phenomena is more effective than encouraging

them to focus on negative phenomena on a short-term basis. It is possible that Beck's technique of reconstructing pessimistic automatic thoughts is counterproductive in some ways because it requires attending to negative events and negative thoughts. This focusing on negative phenomena may inadvertently retrieve other negative material so that the person is overwhelmed by unpleasant and pessimistic ruminations. The purpose of this technique is to help the depressed person to learn to develop alternative, adaptive, logical and rational interpretations of any event that elicited negative thoughts. However, as Beck and his colleagues admit, this is difficult and takes much therapist prompting. Possibly, Group 1 subjects were inadequately trained and therefore their skills in arguing with themselves effectively and countering the negative thoughts was not developed to the point of avoiding the retrieval of negative memories and thoughts.

The superior results of positive focusing over negative reconstruction fits the cognitive loop hypothesis. Isen et al. hypothesize a "warm glow" that accompanies success and "positive cueing". One could just as easily hypothesize a "dark cloud" that accom-

panies unpleasant events, feelings and thoughts, in the depression-prone person because Isen et al. (1978) tentatively conclude that the negative cognitive operates well only in the depressed or depression-prone person. Evidence partially confirms this in that depressed persons punish themselves more and reinforce themselves less than others performing in similar ways (Lobitz & Post, 1979). People in depressed moods also underestimate how often they are successful (Wener & Rehm, 1975; Buchwald, 1977).

The question as to whether restructuring pessimistic thoughts increases the frequency of these thoughts and influences other negative thoughts, and negative feelings, memories, and actions is a difficult one. Kirschenbaum and Karoly (1977) reported that students who monitor their mistakes as they perform math problems report more dysphoric mood than subjects who monitor successes. On the other hand, O'Hara and Rehm (1979) found no significant effect on mood as to whether the normal subjects monitored pleasant events, unpleasant events, both pleasant and unpleasant events or no monitoring (monitoring consisted of filling out Lewinsohn's unpleasant or pleasant events checklists). As stated earlier, the task in Group 3 was probably

more enjoyable than the checklist task.

Future Research

For future research, it would also be advisable to develop instruments which measure negative and positive cognitive style on a comprehensive basis. Some of the measurements of cognitive style used here (test of Ellis rational thoughts, Rotter IE) are limited to rather specific cognitions.

The recording of unpleasant events and spontaneous thoughts used in Experiment 2 has the advantage of measuring a broad range of cognitions and probably approximates actual cognitions better than most measurements of cognitions. The disadvantage is that it has not been established as a valid and reliable measurement of cognition, though Beck and his collegues have used it effectively in therapy for two decades. Other broader measurements of cognitive style were published after these experiments were completed. Unfortunately, these new measurements of cognitive style appear to have complicated relationships to one another and to depression. In a study of the relationship of the Krantz and Hammen's Cognitive Bias Questionnaire and the Seligman, Abramson and van Baeyer's Scale of Attributional Style to each other and to the BDI, the

best correlations of each cognitive measure with the measure of depression and with one another were in the .23 to .44 range (Blaney, Behar & Head, 1980). Just as there is no convergence on measurements of cognitive style, there is no convergence on the most effective cognitive techniques to alleviate depression, although it is clear that cognitive techniques are effective.

Future research could profitably replicate similar treatment groups in similar samples of subjects and in subjects which meet more stringent requirements of having major depressive syndrome according to a widely used diagnostic system like the Research Diagnostic Criteria (RDC; Spitzer, Endicott & Robins, 1978); such research should include more thorough instructions and longer lasting treatment. Perhaps the minimum of a 6-week intervention suggested by Hersen and Bellack (1982) would be more appropriate, although variations of the simple techniques in Groups 2 and 3 might be needed to avoid boredom. If more thorough instructions and longer intervention produced similar results with Group 2 and 3 showing better alleviation of depressive signs than Group 1, Experiment 1, it would be confirmed that positive cueing is as important in cognitive therapy for depression as reconstructing negative thoughts

(or more important). Comparing combinations of positive and negative focusing to each one separately could be done to find out if both are needed for a superior cognitive treatment as Velten (1968) and Isen et al. (1978) predicted. Meanwhile, these present experiments confirm the importance of positive cueing, and indicate that it might profitably precede reconstructing negative thoughts so that the client is more capable of producing alternate interpretations of the self, the world, and the future in Beck's therapy technique of reconstructing negative thoughts. Future research is needed to ascertain how important positive cueing is compared to reconstructing negative thoughts.

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Table 1, Experiment 1

Summary of Beck Depression Inventory (BDI),

Analysis of Covariance Posttest, Adjusted for Pretest Scores

| Group | n | BDI Post M Scores | BDI Post Adjusted M Scores | BDI Post F | Probability Level (p<) |
|---|---|---|---|---|---|
| 1. Beck Reconstruction | 11 | 10.91 | 10.99 | | |
| 2. Velten Statements | 11 | 7.09 | 6.44 | 6.105* | .001 |
| 3. Positive Record | 13 | 6.46 | 8.67 | | |
| 4. Control | 14 | 13.64 | 12.02 | | |

Summary of Student Newman Keuls Pairwise Comparison Post hoc Test

| Comparison Between Groups | Q Score | | Probability Level (p<) |
|---|---|---|---|
| Groups 1 vs. 2 | $q_3$ | 4.64* | .01 |
| Groups 1 vs. 3 | $q_2$ | 2.36 | NS |
| Groups 1 vs. 4 | $q_2$ | 1.05 | NS |
| Groups 2 vs. 3 | $q_2$ | 2.27 | NS |
| Groups 2 vs. 4 | $q_4$ | 5.69* | .01 |
| Groups 3 vs. 4 | $q_3$ | 3.41 | .052 |

Dropout Rate Per Group

| Group | Number Dropped | Sex of Subject | Reasons For Dropping Out |
|---|---|---|---|
| 1 | 2 | F, M | Unable to contact; didn't want to do technique |
| 2 | 0 | | |
| 3 | 3 | F, F, F | Didn't do technique correctly; forgot appointment; went to counselor during treatment week. |
| 4 | 1 | F | Unable to contact |

F = Female
M = Male

Table 2, Experiment 1

Summary of Analyses of Variance of Treatment Groups

Vs. Control Group, Posttreatment on Dependent Measures

| Measures | Beckb Group 1 M | SD | Velten Group 2 M | SD | Record Group 3 M | SD | Control Group 4 M | SD | Source | df | F | p< |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [a]BDI | 10.91 | 5.26 | 7.09 | 4.23 | 6.46 | 4.81 | 13.64 | 4.16 | B<br>W | 3<br>45 | 6.11* | .001 |
| DACL | 7.27 | 2.76 | 6.18 | 4.58 | 6.92 | 4.79 | 11.29 | 3.58 | B<br>W | 3<br>45 | 4.29* | .01 |
| IE | 5.55 | 1.57 | 3.45 | 1.81 | 2.62 | 2.53 | 5.21 | 2.42 | B<br>W | 3<br>45 | 5.2* | .004 |
| CTA | 8.36 | 3.41 | 9.82 | 6.35 | 8.15 | 3.69 | 8.71 | 3.45 | B<br>W | 3<br>45 | .38 | .799 |
| SRA | 3.82 | 2.18 | 3.09 | 1.70 | 3.46 | 1.98 | 5.36 | 2.21 | B<br>W | 3<br>45 | 3.13* | .035 |
| SRD | 2.27 | 1.27 | 2.64 | 1.86 | 3.23 | 2.55 | 3.86 | 2.41 | B<br>W | 3<br>45 | 1.32 | .279 |
| SRHAP | 6.18 | 1.47 | 6.91 | 1.51 | 6.62 | 1.94 | 4.93 | 1.94 | B<br>W | 3<br>45 | 3.24* | .031 |
| SRHELP | 2.00 | 1.41 | 2.82 | 1.83 | 2.77 | 1.88 | 4.79 | 1.37 | B<br>W | 3<br>45 | 6.86* | .001 |

NOTE: The higher the scores, the more depressed or maladapted, except for activity (CTA) and happiness (SRHAP).

a = BDI Analysis of Covariance Computed to Adjust for Preexperimental Scores
b = Full names are written on Table 3
B = Between Groups; W = Within Groups
BDI = Beck Depression Inventory
DACL = Lubin's Depression Adjective Checklist
IE = Rotter's Internal-External Locus of Control Scale
CTA = Community Transaction Analysis (a self-rating of activities)
SRA = Self-Rating Anxiety
SRD = Self-Rating Depression
SRHAP = Self-Rating Happiness
SRHELP = Self-Rating Helplessness

Table 3, Experiment 1

Summary of Student Newman Keul's Multiple Range Test of Comparisons Between Means of Measures Which were Significantly Different on Analysis of Variance, Posttest Scores.

| Dependent Measure | Pairs of Groups That Were Significantly Different From one another $p < .05$ or better | Groups With The Most Adaptive Scores on This Measure |
|---|---|---|
| [a]BDI | 1 vs. 2*; 2 vs. 4*; 3 vs. 4(<.052) | 2*, 3 |
| [b]DACL | 1 vs. 4*; 2 vs. 4*; 3 vs. 4* | 1*, 2*, 3* |
| IF | 1 vs. 3*; 3 vs. 4* | 3* |
| SRA | 2 vs. 4* | 2* |
| SRHAP | 2 vs. 4*; 3 vs. 4* | 2*, 3* |
| SRHELP | 1 vs. 4*; 2 vs. 4*; 3 vs. 4* | 1*, 2*, 3* |

BDI Posttest Means by Sex

(Number in parenthesis)

| | Group 1 | Group 2 | Group 3 | Group 4 |
|---|---|---|---|---|
| Female | 10.2(10) | 7(10) | 4.63(8) | 13.9(10) |
| Male | 18(1) | 8(1) | 9.4(5) | 13(4) |

Group 1 = Beck's Reconstruction of Negative Thoughts
Group 2 = Velten's Elation Mood Induction
Group 3 = Record of Positive Events, Feelings & Thoughts
Group 4 = Waiting for Treatment Control

[a]BDI Analysis of Covariance Computed to Adjust for Preexperiment Scores

[b]Measurement names are given on Table 2.

*Significance at the <.05 level or better

Table 4, Experiment 1

Mean Scores on Rotter Internal-External Scale

| Group | Pretest Mean | Pretest SD | Posttest Mean | Posttest SD |
|---|---|---|---|---|
| 1. Beck | 4.91 | 2.02 | 5.55 | 1.57 |
| 2. Velten | 5.6 | 1.89 | 3.45 | 1.80 |
| 3. Record | 5.23 | 2.71 | 2.61* | 2.53 |
| 4. Control | 5.58 | 1.98 | 4.79 | 2.42 |

Note: Scores may appear low here because items on Rotter's scale were assigned to two sets of statements to be used separately at pre and posttreatment occasions. Therefore, the scores are 50% lower than usual. The higher the score, the more external the person's score.

* = Significantly different from Groups 1 and 4 at $p < .05$.

Analysis of the Control Group, Group 4

Post 1 (before treatment) vs. Post 2 (after treatment)

| n | Mean Difference | SD | t | df | 2-Tail Probability |
|---|---|---|---|---|---|
| 12 | 2.17 | 6.31 | 1.19 | 11 | .259 |

Analysis of Treatment Groups 1-3,

Post 1 vs. Follow-up

| n | Mean Difference | SD | t | df | 2-Tail Probability |
|---|---|---|---|---|---|
| 17 | .29 | 4.95 | .25 | 16 | .809 |

Table 5, Experiment 2 Results

Means and t Statistics for Dependent Measures

| Group | n | BDI Post M | BDI Pre-Post Differences | BDI t | Ellis M | Ellis t | M Thought Ratings on Negative Events | Thoughts t | Self-Esteem M | Self-Esteem t |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Velten | 32 | 9.5 | 7.15 | 2.03* | 1.16 | 2.24* | -.838 | 2.20* | 30.16 | 1.74a |
| 2 Control | 33 | 13.5 | -.14 | | 2.36 | | -2.15 | | 24.85 | |

| Group | n | ACTL M | ACTL t | IE M | IE t | SRHELP | SRHELP t | SRA M | SRA t |
|---|---|---|---|---|---|---|---|---|---|
| 1 Velten | 32 | .275 | .428 | -.16 | .435 | 14.78 | 1.64 | 22.47 | .995 |
| 2 Control | 33 | .103 | | -.42 | | 19.27 | | 25.24 | |

* = Significant at p<.05 or Better
a = p<.10
ACTL = Activity Level
IE = Rotter Internal-External Locus of Control
SRHELP = Self-rating of Helplessness
SRA = Self-rating of Anxiety

Table 6, Experiment 2,

Analysis of The Control Group, Post 1

vs. Post 2 and of the 3-Month Follow-Up Data

From Control Group Subjects Who Returned Follow-Up

Packets: Post 1 (before treatment) vs. Post 2 (after treatment)

| Mean Difference | SD | df | t | p |
|---|---|---|---|---|
| 4.182 | 8.49 | 10 | 2.27* | <.05 |

Data From All Subjects Who Returned

Adequate Follow-Up Packets: Post 1 and Post 2 vs. Follow-Up

| Mean Difference | SD | df | t | p |
|---|---|---|---|---|
| .46 | 7.6 | 29 | .33 | <.25 |

t = t statistic

p = Probability level

* = Significantly different at p <.05 or better.